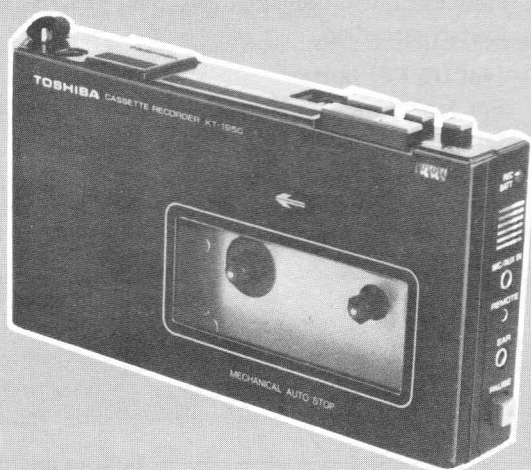


# TOSHIBA

## CASSETTE RECORDER

# KT-1950



### SPECIFICATIONS

Track system	2 tracks 1 channel monaural	Ext. mic:	
Recording system	AC bias (40 kHz)	impedance	400 ohm ~
Erase system	Magnetic erasure		2.2k ohm
Usable tapes	C-30 ~ C-120 cassette tapes	input level	0.5mV
Tape speed	4.8 cm/sec.	Output terminals	Remote terminal 2.5mm
Frequency response	125 Hz ~ 8 kHz		Earphone terminal 3.5mm
Speaker	50 mm dynamic speaker	Power supply	DC 6V
Maximum output	400 mW (10% dist.)		("AA" cell x 4)
Semiconductors	2 ICs (including one for built-in microphone)		External power supply terminal [DC IN 6V]
	2 transistors		(Centre pin positive polarity)
	4 diodes	Battery life	Approx. 3.5 hours
Input terminals	External input/external microphone (MIC/AUX IN) 3.5 mm		("AA" cell x 4)
	Aux. in:	External dimensions	161.5(W)x86(H)x 29.8(D)(mm)
	impedance 1.5M ohm		6-3/8"(W) x 3-3/8(H) x 1-3/16"(D)
	input level 100mV	Weight	370g [13 oz] (W/O batteries)
		Accessories	AC adaptor, Carrying case

Specifications are subject to change without notice.

TE, TU, TA, TC

# 1. LOCATION OF CONTROLS

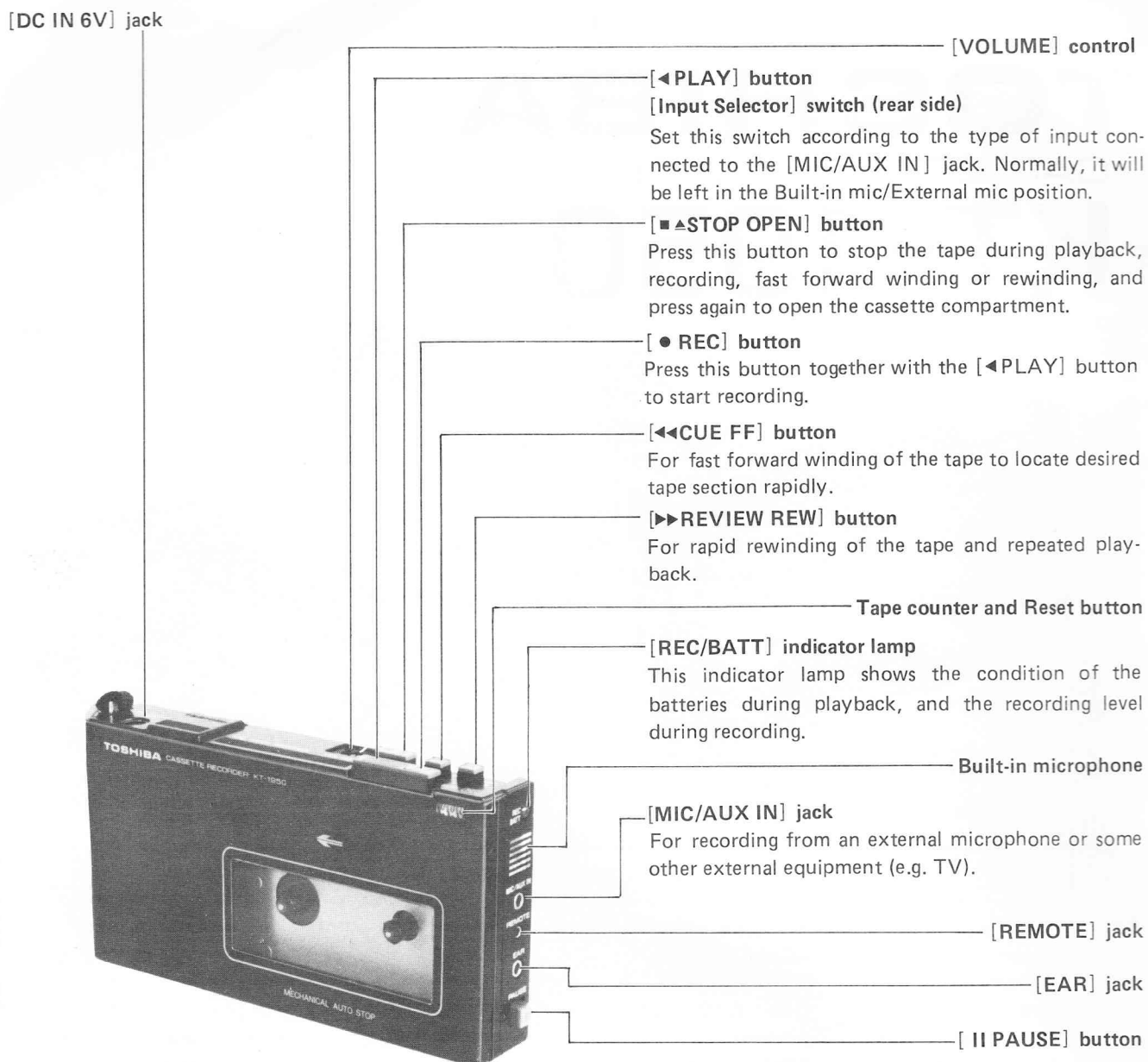


Figure 1

**Note:** 1. When the [■▲STOP/OPEN] button is pressed with the recorder standing upright on a level surface, the cassette compartment cover will not open very easily. Incline the recorder

backwards before attempting to remove the cassette tape.

2. Open the cassette compartment by hand when there is no cassette tape inside.

## 2. DISASSEMBLY INSTRUCTIONS

### Removal of Back Cabinet

- (1) Remove the battery cover.
- (2) After removing four screws (A) (B) (C) (D), open the back cabinet and remove a built-in microphone from its cap. The back cabinet can be removed out.

### Removal of Front Cabinet

- (1) Remove the back cabinet.
- (2) Remove a screw (E) to take the front panel off.

### To Open P.C. Board

- (1) Remove the back cabinet.
- (2) Remove a screw (F) to open the P.C. Board.

**Note:** When the P.C. Board is fixed, make sure to insert the REC spring into a hole on the record/playback change-over switch.

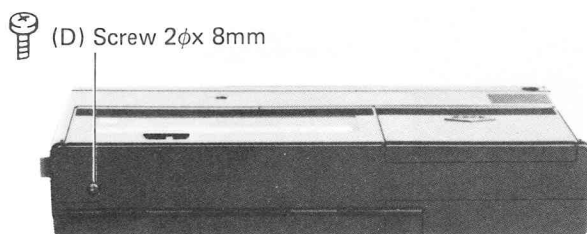


Figure 3

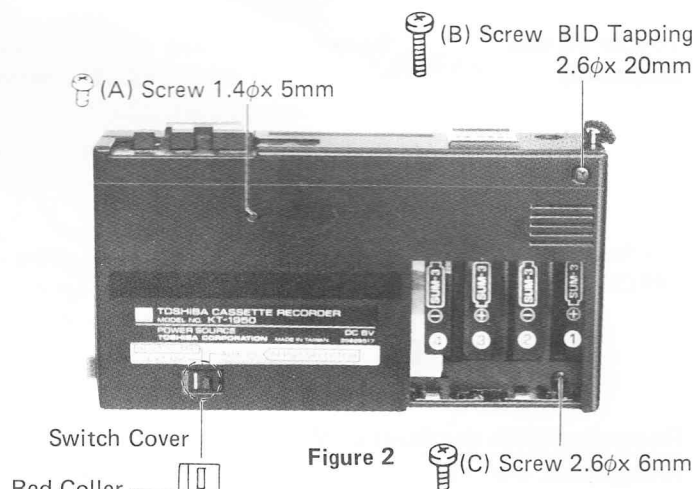


Figure 2

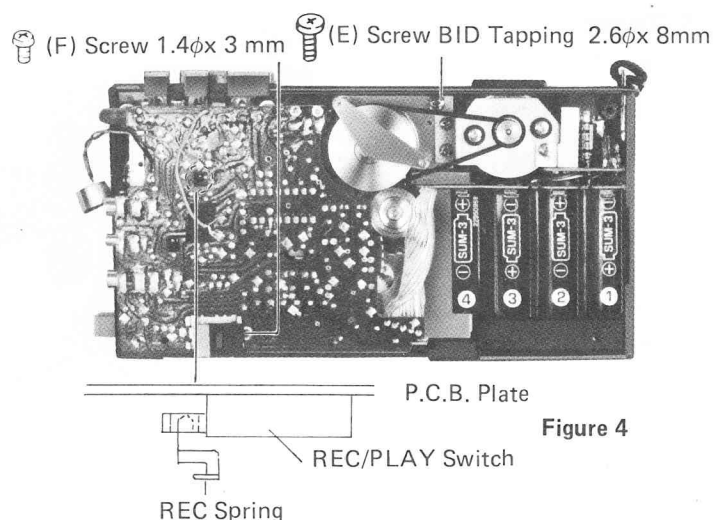


Figure 4

## 3. OPERATION

### Playback Mode

Proceed according to the numbered steps.

3. Adjust the [VOLUME] control.

4. To stop the tape, press the [■▲ STOP/OPEN] button.

2. Press the [◀PLAY] button.

1. Open the cassette compartment, and insert a cassette tape.

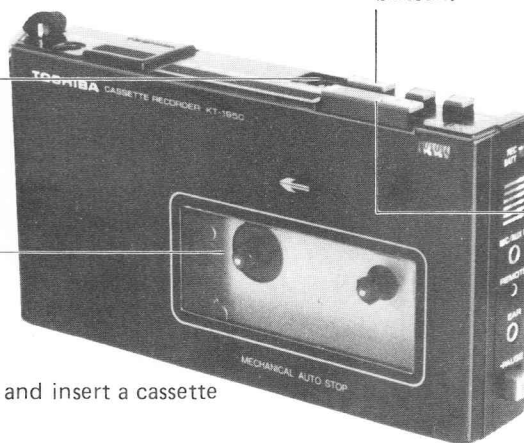


Figure 5

- For earphone listening, simply plug the earphone into the [EAR] jack.

**To stop the tape temporarily**

To temporarily stop the tape movement in any mode (playback, record, fast forward or rewind) press the [II PAUSE] button. Press this button once to stop the tape movement and press it again to start.

**Review function**  
[▶▶REVIEW REW]

During playback mode, press the [▶▶REVIEW REW] button. The tape will be rewound only while the button is depressed. When the button is released, the tape will resume the former playback mode.

**Cue function**  
[◀◀CUE FF]

Operation is much the same as the review function. Press the [◀◀CUE FF] button during playback mode, and release again when the desired section of tape has been located. The tape will then resume playback mode.

- When the [◀ PLAY] button is pressed, the [REC BATT] indicator lamp will light up.

### Recording With the Built-in Microphone

Always check that the rear [Input Selector] switch has been set to the Built-in mic/External mic position.

Proceed according to the numbered steps.

1. Open the cassette compartment, and insert a cassette tape.
2. Reset the tape counter to "000".
3. Press the [● REC] and [◀ PLAY] buttons together.
4. Speak into the built-in microphone. To monitor what is being recorded, plug an earphone into the [EAR] jack.
5. To stop recording, press the [■ ▲ STOP/OPEN] button.

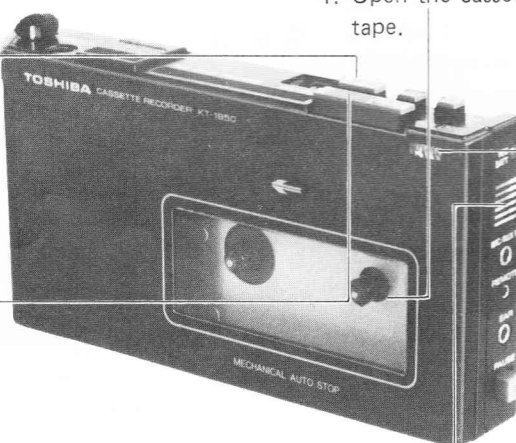


Figure 6

- The [REC/BATT] indicator lamp will turn on and off according to the volume level of the recorded source, thereby indicating that recording is in progress.
- The KT-1950 has been equipped with an automatic recording level control circuit (ALC) that will automatically adjust recording to a suitable level.

Note that it will not be possible to press the [● REC] button if the erasure prevention tabs along the back ridge of the cassette tape have been broken off. Do not apply undue pressure to this button in this case.

**ASO (Auto Shut Off)**

When the end of the tape is reached during playback or recording mode, the tape stops automatically, the depressed control buttons releases, and the power supply is turned off. (Note, however, that ASO does not operate during fast forward and rewind modes. In these modes it is necessary to press the [■ ▲ STOP/OPEN] button).

**Erasure of recorded tapes**

Set the Input Selector to the External Input position. Then simultaneously press the [● REC] and [◀ PLAY] buttons to commence recording mode. The pre-recorded material will be erased. Note, however, that this must be done in a relatively quiet place. Any loud noises nearby will be recorded.

## 4. OPERATION PRINCIPLE OF MECHANISM

### Stop:

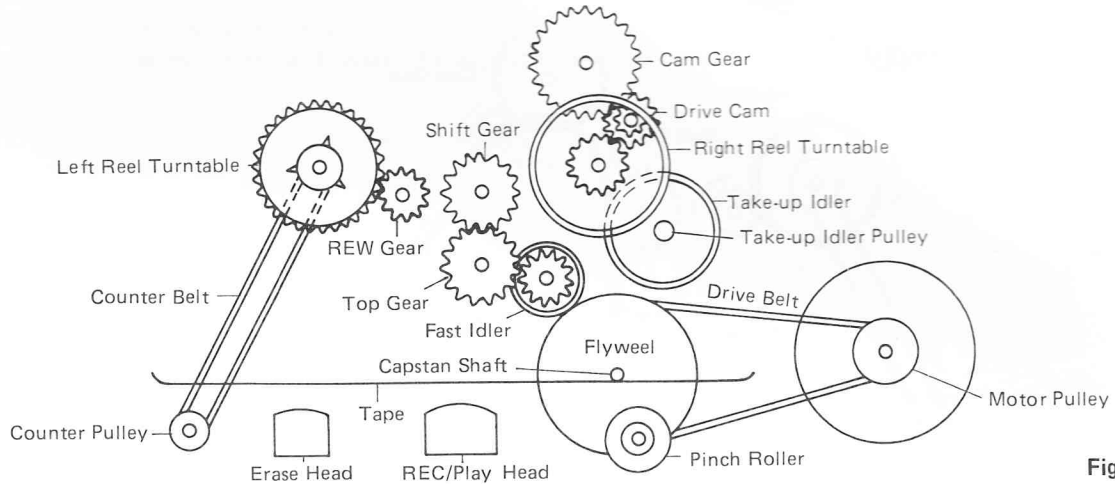


Figure 7

### Playback:

When the PLAY button has been pushed, the motor rotates and the pinch roller hits upon the capstan shaft to feed a tape. At the same time, the take-up idler touches the flywheel and the take-up idler pulley hits upon the right reel turntable to take up the tape. The left reel turntable rotates as if it is pulled by the tape. The tape counter pulley rotates also with the counter belt.

### Recording:

Operation is the same as that for playback, except that the erase head moves to the position indicated by the dotted line and touches the tape.

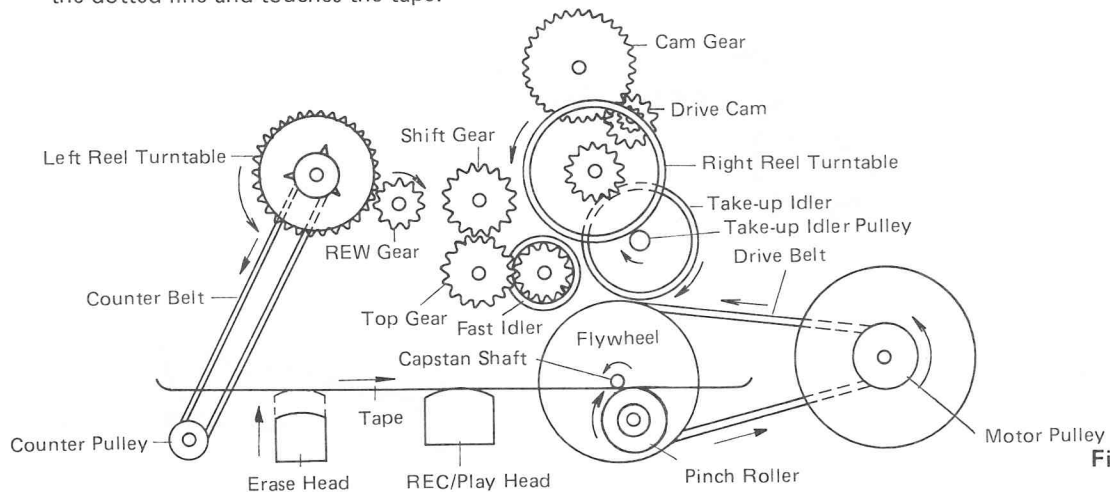


Figure 8

### Rewinding:

Push the REVIEW REW button. Then, the shift gear touches the REW gear and rotation of the flywheel is transmitted in following order: fast idler → top gear → shift gear → REW gear → left reel turntable, and the tape is rapidly rewound.

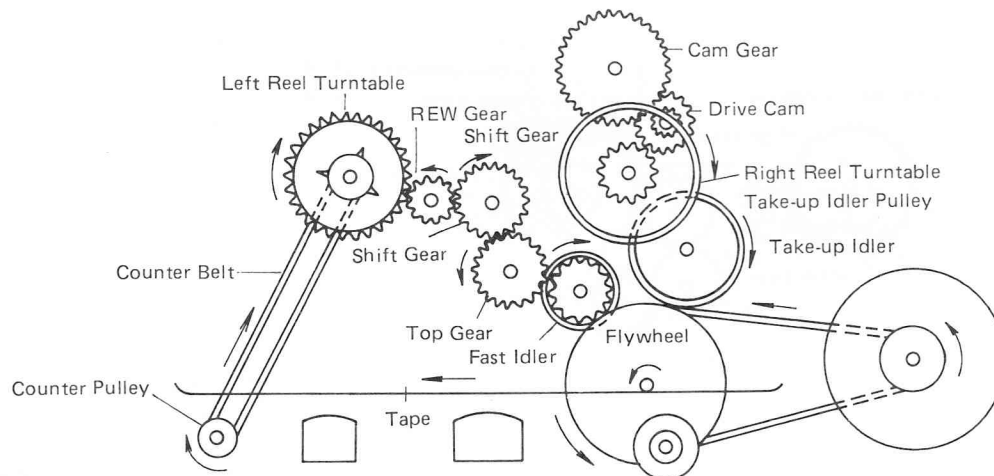


Figure 9



**Fast Forward:** Push the CUE FF button. Then, the shift gear touches the right reel turntable and rotation of the flywheel is transmitted in following order: fast idler → shift gear → right reel turntable, and the tape is rapidly fed.

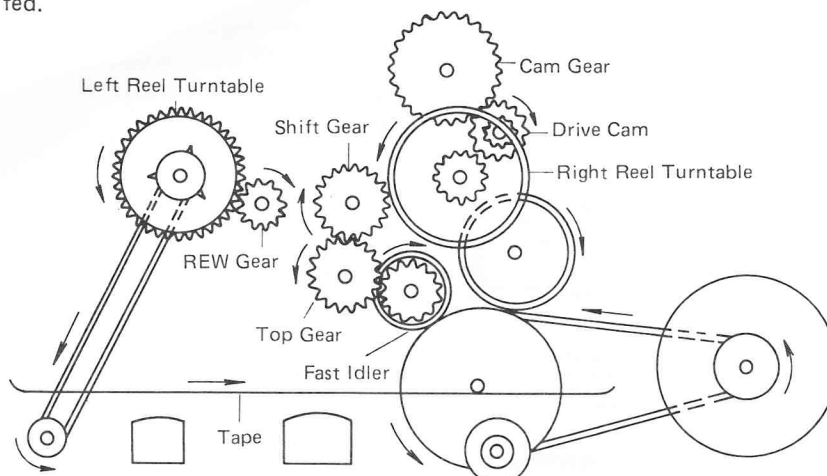


Figure 10

**Repeat:**

When the REVIEW REW button is pushed during playback, the pinch roller separates from the capstan shaft and the record/playback head separates from the tape. At the same time, the take-up idler pulley separates from the right reel turntable. As soon as the fast idler touches the flywheel, the shift gear hits upon the REW gear and the tape is rapidly rewound. When the REVIEW REW button is released, playback is resumed.

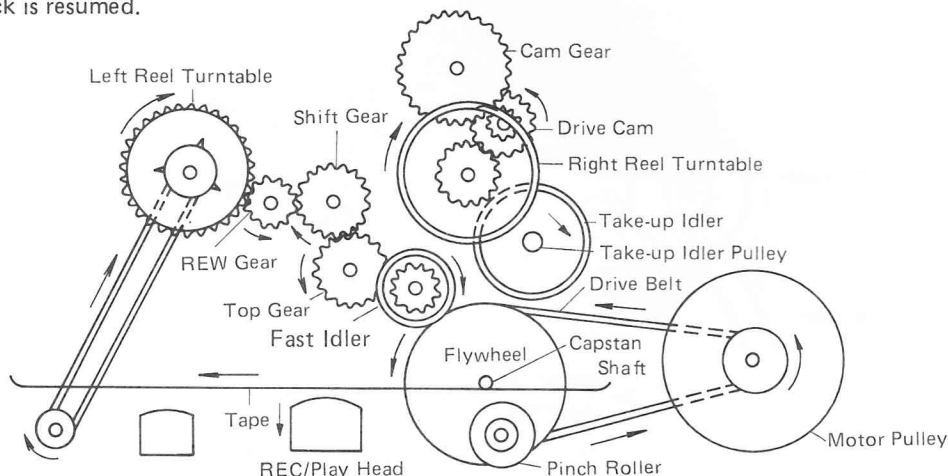


Figure 11

**Detecting program head:**

When the CUE FF button has been pushed during playback, the pinch roller separates from the capstan shaft and the record/playback head separates from the tape. At the same time, the take-up idler pulley separates from the right reel turntable. As soon as the fast idler touches the flywheel, the shift gear touches the right reel turntable and the tape is rapidly fed. When the CUE FF button is released, playback is resumed.

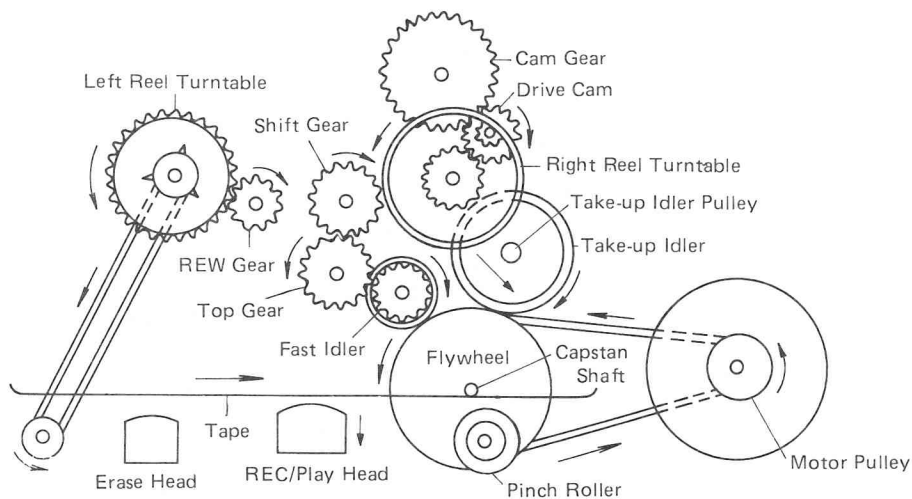


Figure 12

## 5. ELECTRICAL ADJUSTMENT

1. Connect a VTVM across the Earphone Jack.
2. Playback the test tape (6.3 kHz) and adjust the azimuth adjusting screw so that the VTVM indicates maximum position.

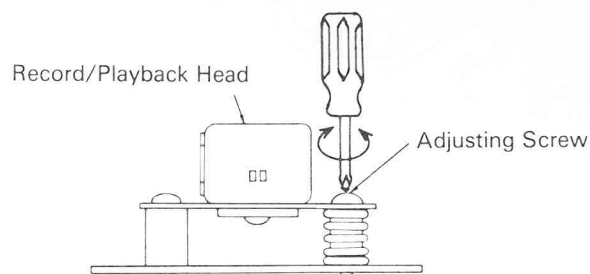
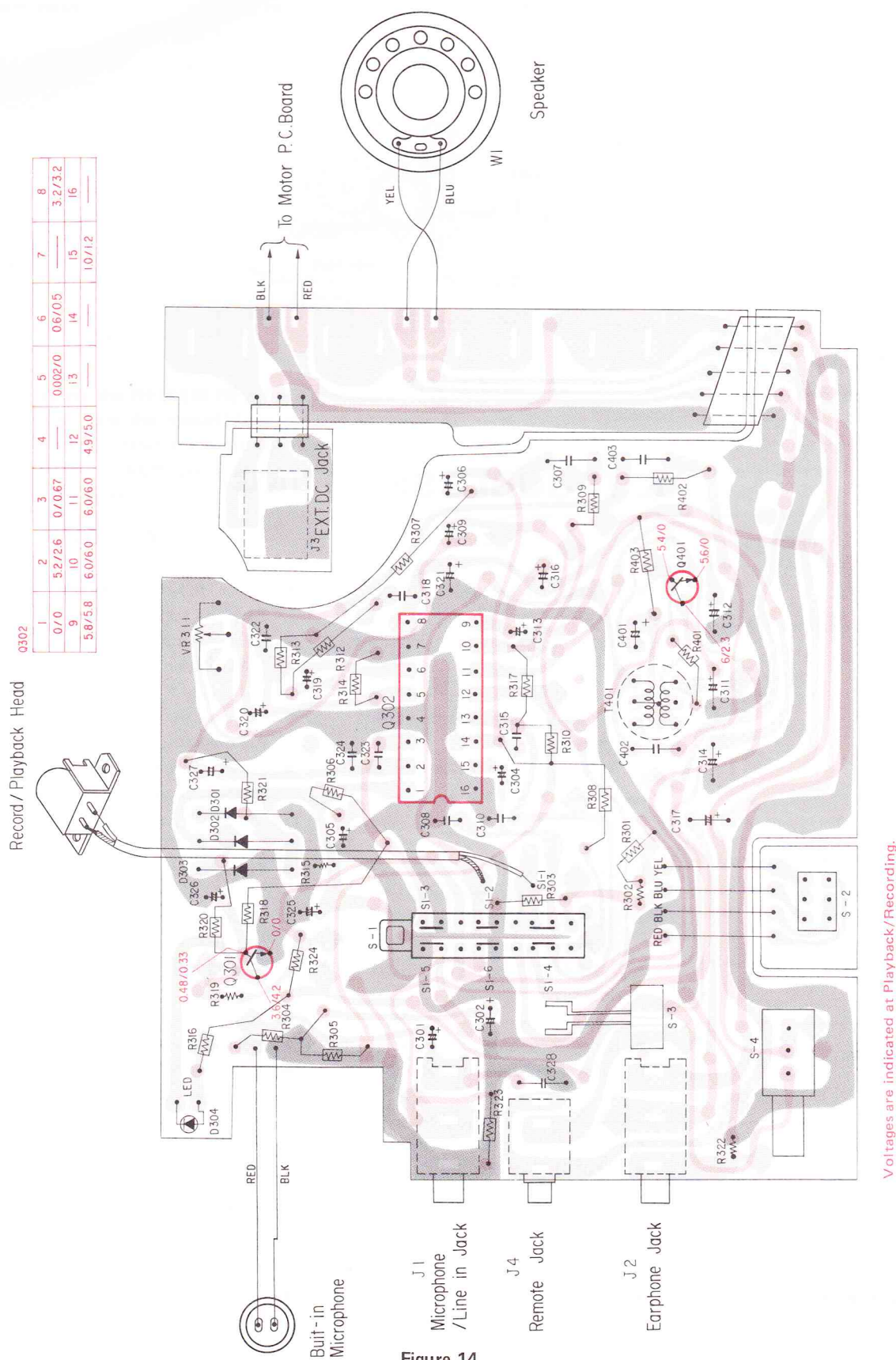


Figure 13

## 6. TROUBLE SHOOTING

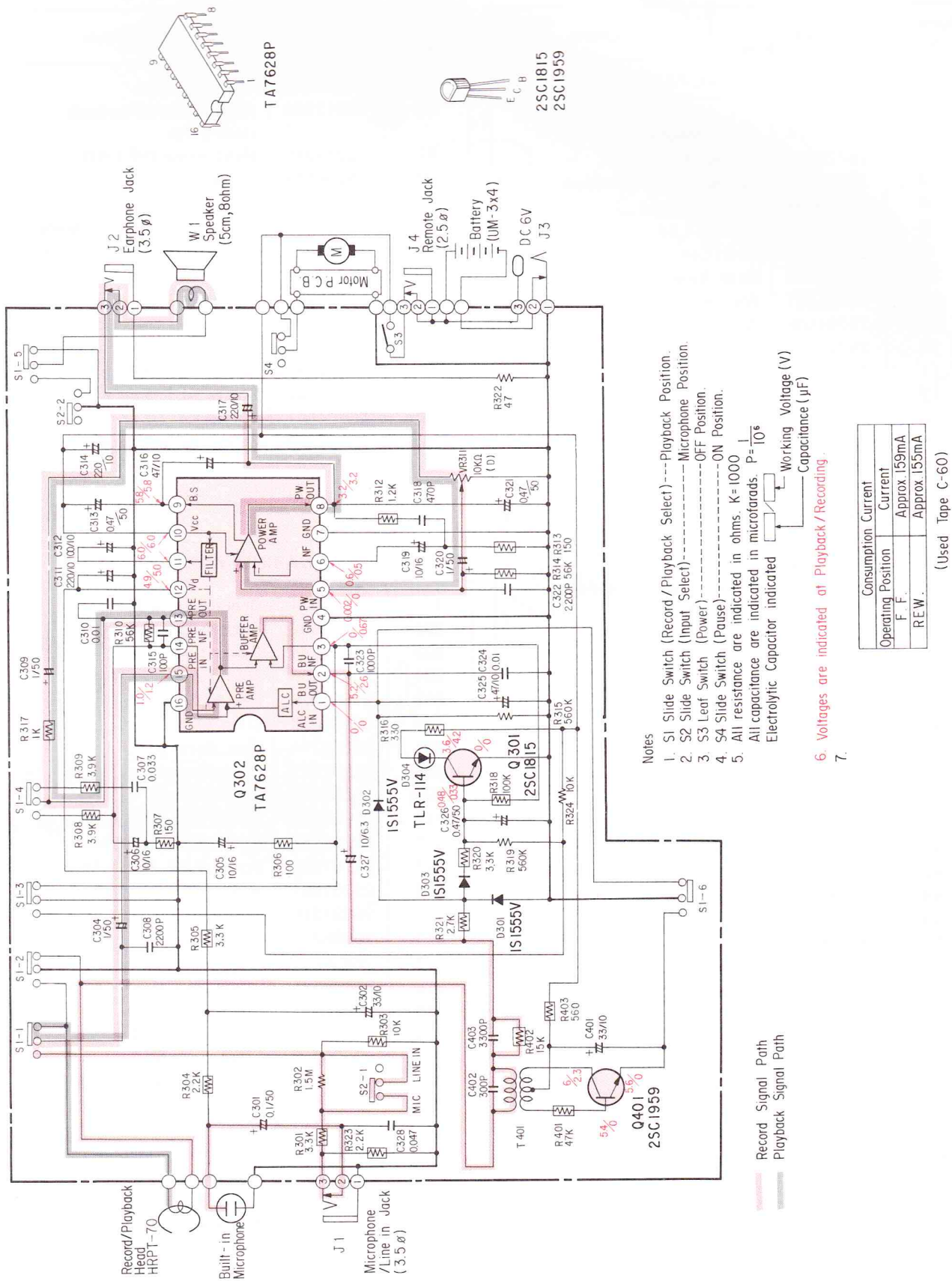
Symptom	Cause	Correction
Cassette tape cannot be inserted.	<ul style="list-style-type: none"> <li>• Cassette tape is upside down.</li> <li>• Cassette tape has not been inserted properly.</li> </ul>	<ul style="list-style-type: none"> <li>• Insert the cassette with the exposed tape side facing upwards.</li> <li>• Insert the cassette tape squarely into the compartment.</li> </ul>
Cassette tape does not move.	<ul style="list-style-type: none"> <li>• Batteries not inserted in correct arrangement.</li> <li>• AC adaptor plugged in recorder only.</li> <li>• External microphone plugged in, but remote switch turned off.</li> <li>• Battery contacts in battery compartment have become soiled.</li> <li>• [ II PAUSE ] button has been depressed.</li> </ul>	<ul style="list-style-type: none"> <li>• Reinsert the batteries in accordance with the diagram.</li> <li>• Either disconnect the AC adaptor (for battery power) or plug in properly to DC IN 6V jack and wall socket (for AC power).</li> <li>• Turn the remote switch on.</li> <li>• Clean (polish) the contacts with a cloth or suitable brush.</li> <li>• Release the [ II PAUSE ] button.</li> </ul>
Recording button will not lock.	<ul style="list-style-type: none"> <li>• No cassette tape in compartment.</li> <li>• Erasure prevention tabs removed.</li> </ul>	<ul style="list-style-type: none"> <li>• Insert a cassette tape.</li> <li>• Cover up the gap left by the broken off tab.</li> </ul>
Poor quality sound during playback	<ul style="list-style-type: none"> <li>• Batteries have run down.</li> <li>• Head has become dirty.</li> <li>• Tape has been damaged or wrinkled.</li> </ul>	<ul style="list-style-type: none"> <li>• Insert fresh batteries.</li> <li>• Clean off dirt with a head cleaning rod.</li> <li>• Try another cassette tape.</li> </ul>
Microphone recording not possible.	<ul style="list-style-type: none"> <li>• [ Input Selector ] switch left in External Input position.</li> </ul>	<ul style="list-style-type: none"> <li>• Return [ Input Selector ] switch to Built-in mic/External mic position.</li> </ul>

## 7. P.C. BOARD PARTS LOCATION

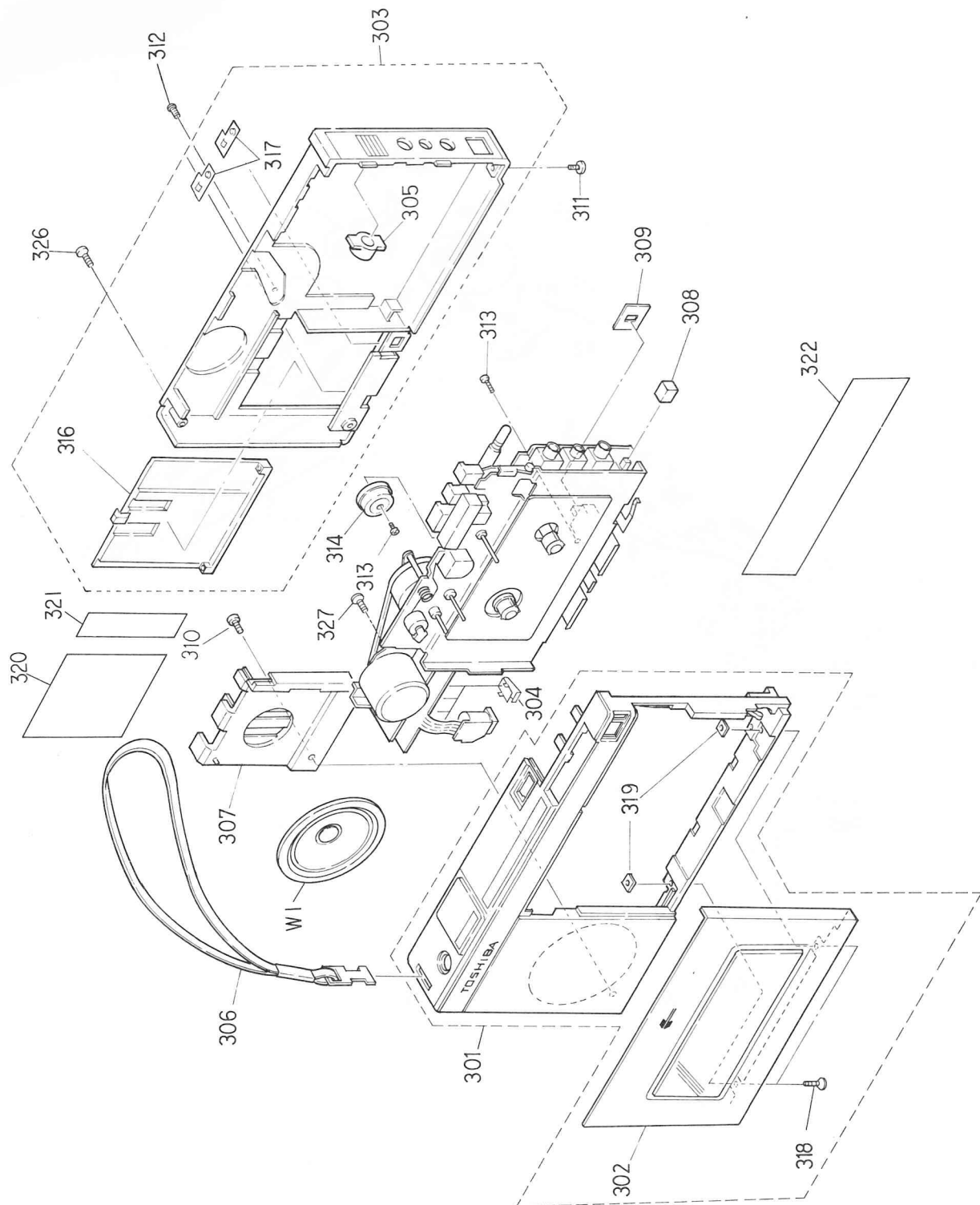




## 8. SCHEMATIC DIAGRAM



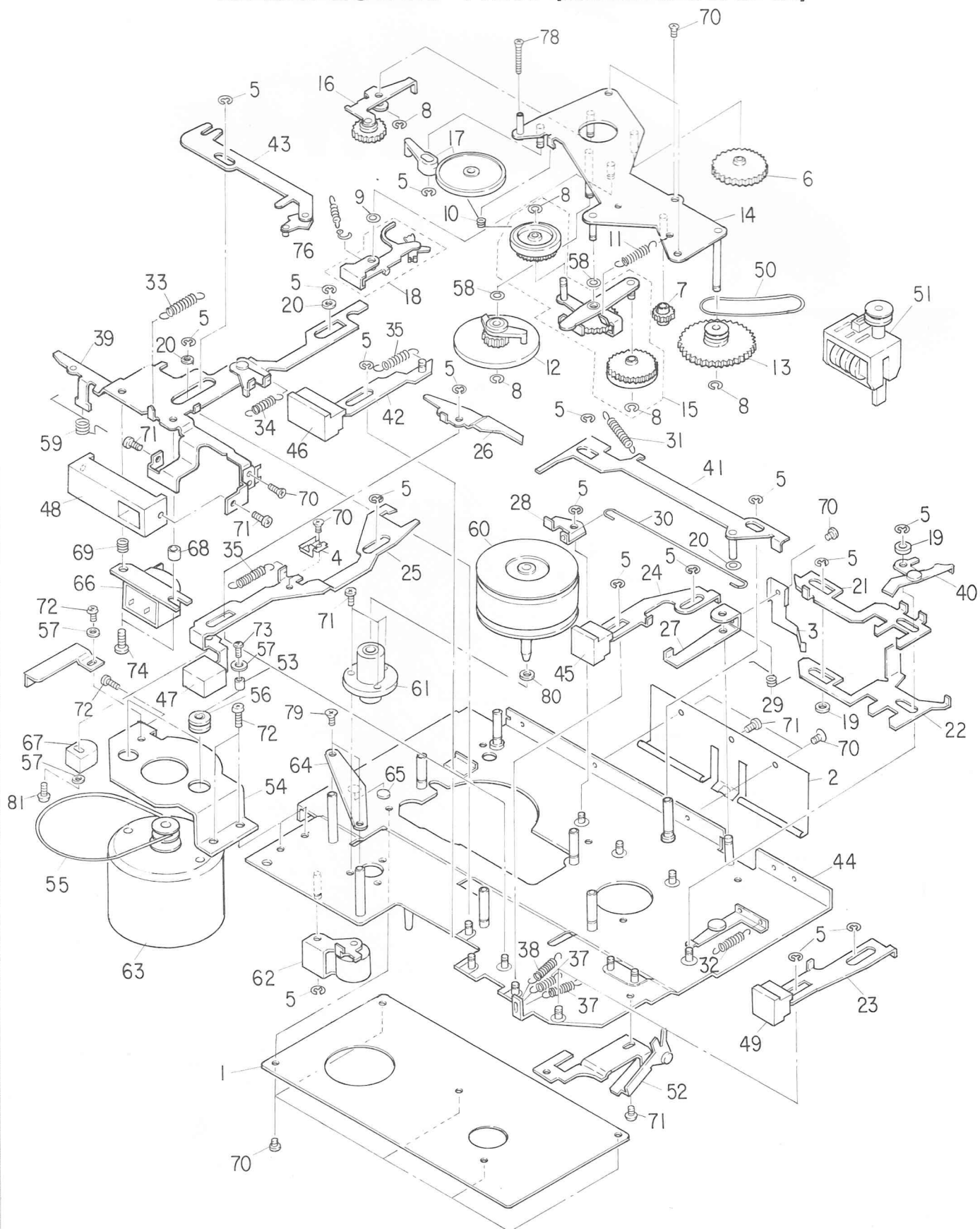
## 9. EXPLODED VIEW (CABINET)



**NOTE:** Parts excluded in the Parts List are not available as replacement parts.

Figure 16

# 10. EXPLODED VIEW (MECHANICAL)



**NOTE:** Parts excluded in the Parts List are not available as replacement parts. **Figure 17**

# 11. PARTS LIST

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
<b>MECHANICAL PARTS</b>					
1	25736774	Cover, Mechanism	65	25764593	Washer, Thrust
2	25779076	Spring, Holder	66	22217346	Head, Record/Playback (HRPT-70)
3	25779052	Spring, Erase Prevention	67	22218218	Head, Erase (HET-47)
4	25779053	Spring, Record	68	25726563	Spacer
5	25735159	E Ring, 1.5 $\phi$	69	25772504	Spring, Head
6	25756226	Gear, Cam	70	22707495	Screw, FLT, 1.4 $\phi$ x 1.6mm
7	25756220	Gear, Rewind	71	22707496	Screw, PAN, 1.4 $\phi$ x 2.5mm
8	25764361	Washer	72	22701467	Screw, BID, 2 $\phi$ x 3mm
9	25764566	Washer	73	22707451	Screw, BID, 2 $\phi$ x 5mm
10	25773464	Spring, Take-up Lever	74	22707505	Screw, BID, 2 $\phi$ x 6mm
11	25776153	Spring	76	25776154	Spring
12	25712372	Reel Ass'y, Take-up	78	22702173	Screw, PAN, 1.4 $\phi$ x 6mm
13	25712373	Reel Ass'y, Supply	79	22707544	Screw, FLT, 1.4 $\phi$ x 20mm
15	25713515	Gear Ass'y, Fast	80	25764597	Washer
16	25713516	Lever Ass'y Cam Drive	81	22702172	Screw, PAN, 2 $\phi$ x 8mm
17	25713517	Lever Ass'y, Take-up	<b>CABINET PARTS</b>		
18	25791079	Lever Ass'y, Detect	301	25817584	Cabinet Front Ass'y
19	22703166	Washer	302	25817508	Cassette Cover Ass'y
20	25726562	Roller	303	25817585	Cabinet Back Ass'y
29	25773465	Spring, Erase Prevention	304	25839256	Spring, Battery
30	25775191	Wire, Release	305	25858478	Cap, Microphone
31	25776145	Spring	306	33993028	Strap Ass'y
32	25776146	Spring	307	25838214	Case, Battery
33	25776147	Spring	308	25837311	Knob, Switch
34	25776148	Spring	309	25833446	Cover, Switch
35	25776149	Spring	310	22707037	Screw, BID, 2.6 $\phi$ x 6mm
37	25776151	Spring	311	22707485	Screw, BID, 2 $\phi$ x 8mm
38	25776152	Spring	312	22707500	Screw, PAN, 1.4 $\phi$ x 5mm
40	25791098	Lever Ass'y, Up Drive	313	22707501	Screw, PAN, 1.4 $\phi$ x 3mm
45	25782347	Button, Fast Forward	314	25837310	Knob, Volume
46	25782348	Button, Stop	316	25838213	Cover, Battery
47	25782349	Button, Record	317	25839255	Plate, Battery
48	25782350	Button, Play	318	22707486	Screw, FLT, 1.7 $\phi$ x 4mm
49	25782352	Button, Rewind	319	25846413	Nut, Plate
50	25755443	Belt, Counter	320	22950968	Label, Battery, 1
51	25873214	Counter	321	22900036	Label, Battery, 3
53	25726568	Spacer, 2 $\phi$ x 3mm	322	22900035	Label, Caution (TE, TU)
55	25755435	Belt, Drive	322	22900034	Label, Caution (TA, TC)
56	25761424	Cushion, Motor	325	25764392	Washer
57	25735249	Washer	326	22707516	Screw, BID, Tapping, 2.6 $\phi$ x 20mm
58	25764534	Washer	327	22707525	Screw, BID, Tapping, 2.6 $\phi$ x 8mm
59	25773466	Spring, Pinch Lever			
60	25717431	Flywheel Ass'y			
61	25717432	Capstan Ass'y, Holder			
62	25717433	Lever Ass'y, Pinch			
63	25791104	Motor Ass'y			

Symbol No.	Part No.	Description
<b>TRANSISTORS, DIODES AND IC</b>		
Q301 Q302 Q401		Transistor, 2SC1815-BL IC, TA7628P Transistor, 2SC1959-Y
D301 D302 D303 D304		Diode, 1S1555V  Diode, TLR114
<b>ELECTRICAL PARTS</b>		
J1, 2 J3 J4 S1 S2 S3 S4 T401 W1	22163693 22163721 22163722 22195509 22195431 22195432 22195426 22235171 22152280 22154080	Jack, 3.5 $\phi$ Microphone/Earphone Jack, DC Power (DC-6V) Jack, 2.5 $\phi$ Remote Control Switch, Slide, Record/Playback Switch, Slide, INPUT Selector Switch, Leaf, Power Switch, Slide, Pause Coil, OSC, Bias Speaker, 5 cm, 0.2W, 8 ohm Microphone Unit
<b>CAPACITORS</b> K = $\pm 10\%$ , M = $\pm 20\%$ ABBREVIATIONS: EL = Electrolytic, CD = Ceramic Disk		
C301 C302 C304 C305 C306 C307 C308 C309 C310 C311 C312 C313 C314 C315 C316 C317 C318 C319 C320 C321 C322 C323 C324	22440321 22440337 22440272 22440276 22440276 22360486 22360367 22440272 22360344 22440340 22440339 22440271 22440340 22362101 22440336 22440340 22360362 22440276 22440272 22490013 22360367 22360366 22360344	EL, 0.1mfd, 50V EL, 33mfd, 10V EL, 1mfd, 50V EL, 10mfd, 16V EL, 10mfd, 16V CD, 0.033mfd, 25V, M CD, 2200pF, 50V, K EL, 1mfd, 50V CD, 0.01mfd, 25V, M EL, 220mfd, 10V EL, 100mfd, 10V EL, 0.47mfd, 50V EL, 220mfd, 10V CD, 100pF, 50V, K EL, 47mfd, 10V EL, 220mfd, 10V CD, 470pF, 50V, K EL, 10mfd, 16V EL, 1mfd, 50V EL, 0.47mfd, 35V, M CD, 2200pF, 50V, K CD, 1000pF, 50V, K CD, 0.01mfd, 25V, M

Symbol No.	Part No.	Description
C325 C326 C327 C328 C401 C402 C403	22440336 22440271 22490006 22360346 22440337 22360461 22360461	EL, 47mfd, 10V EL, 0.47mfd, 50V EL, 10mfd, 6.3V, M CD, 0.047mfd, 12.5V, M EL, 33mfd, 10V CD, 3300pF, 50V, K CD, 3300pF, 50V, K
<b>RESISTORS</b> All resistors are carbon film 1/16W, $\pm 5\%$ , unless otherwise noted. K = $\pm 10\%$		
R301 R302 R303 R304 R305 R306 R307 R308 R309 R310 R311 R312 R313 R314 R315 R316 R317 R318 R319 R320 R321 R322 R323 R324 R401 R402 R403	22570400 22570507 22570406 22570410 22570400 22570382 22570384 22570401 22570401 22570415 22613034 22570395 22570384 22570415 22570427 22570388 22570394 22570418 22570427 22570400 22570399 22570378 22570410 22570406 22570414 22570408 22553561	3.3k ohm 1.5M ohm, K 10k ohm 2.2k ohm 3.3k ohm 100 ohm 150 ohm 3.9k ohm 3.9k ohm 56k ohm 10k ohm, Variable D 1.2k ohm 150 ohm 56k ohm 560k ohm, K 330 ohm 1k ohm 100k ohm 560k ohm, K 3.3k ohm 2.7k ohm 47 ohm 2.2k ohm 10k ohm 47k ohm 15k ohm 560 ohm, 1/8W
<b>ACCESSORIES</b>		
	22138414 22992055 22902594 22902687	Adaptor, AC (TA, TC) Case, Carring Owner's Manual (TE, TU) Owner's Manual Ass'y (TA, TC)



# **TOSHIBA CORPORATION**

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